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Department of  
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Forest  
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Date: November 14, 1994

Subject: Field review of true fir marking guidelines on the Pegleg and Harvey salvage sales. (NE95 - 2)

To: District Ranger, Eagle Lake Ranger District, Lassen National Forest

On October 28 and November 4, 1994, Sheri Smith, entomologist, conducted a field evaluation of the 6 month marking guidelines in the Pegleg and Harvey salvage sales on the Eagle Lake Ranger District. The evaluation was conducted at the request of Tom Simonson, Forest Silviculturist, and Al Vazquez, District Silviculturist, Eagle Lake Ranger District. The objectives were to evaluate the current Forest 6 month marking guidelines for true fir to determine if they are appropriate under the present conditions, to provide insect input to the marking guidelines and provide suggestions for modifying the guidelines for site specific areas as needed. Input was also provided by Beverly Clark, Ricky Crowther, Randy Cowley, Randy Nelson and Barbara Ditman, Eagle Lake Ranger District.

The current 6 month salvage marking guidelines for true fir on the Lassen National Forest are as follows:

1. Trees which have 10 percent or more of their crown length dead or actively fading, are considered dead.
2. Trees which show pitch flow to the point of involving 75 percent of the circumference of the bole are considered dead.
3. Trees which have less than 10 percent crown fade but have white boring dust or frass around 75 percent of the bole circumference.

The first area visited was the Pegleg salvage sale encompassing 1,800 acres of which about 1,000 acres are in a Spotted Owl Habitat Area (SOHA). Salvage marking, using the above guidelines, was initiated during 1993 and completed during 1994. Tree removal began during 1994. This area is characterized as a relatively high site for true fir on the District. It receives about 40 inches of precipitation during a normal year. The second area was the Sunny salvage sale (Harvey Mtn.) which encompasses 6,000 acres. This site is drier than the Pegleg area, receiving about 18 inches of precipitation under normal conditions. Fire exclusion and selective logging have resulted in an increase in understory white fir in this area.

The group examined and discussed several standing white and red fir trees. This included trees that were marked for salvage, in addition to several that were not marked. Observations were made of individual tree crowns to determine

an appropriate percent of top-kill to include as a 6 month marking criteria. Based on the experiences and observations of true fir mortality in these areas over the past 2 years, the Forest and District personnel agreed to modify criteria (1) above to require 1/3 (33 percent) or more of the crown length to be actively fading for the Pegleg salvage sale and 1/4 (25 percent) or more active crown fade in the Harvey sale area to meet the 6 month salvage marking guideline. This specifically excludes older top-kill.

We also examined pitch streamers on several felled trees to determine if they were associated with current fir engraver attacks. Pitch streamers initiated from areas where: 1) there were no fir engraver attacks, 2) there were old fir engraver attacks that had already begun to callous over, and 3) where there were unsuccessful fir engraver attacks. These findings confirmed observations from other areas that pitch streamers are not a consistently valid indicator of current, successful fir engraver attacks. Based on these observations the Forest and District personnel decided to delete criteria (2) above and exclude any type of pitch streaming as a marking criteria for 6 month salvage marking guidelines.

In addition to the white, fibrous frass produced by the fir engraver, several true fir also had varying amounts of red, granular frass on the lower bole. Initial identification of the bark beetle associated with the red frass is a species of Hylurgops. The adult bark beetles were just beginning to bore into the bark, therefore gallery formation had not occurred. Based on this observation, criteria (3) above was modified to read as follows: trees which have less than 10 percent crown fade but have white or red boring dust or frass around 75 percent of the bole circumference. Half of this requirement must be met by white, fibrous frass.

It is recommended that this modification of criteria (3) apply to the Pegleg and Harvey salvage sales only. It is also recommended to apply only for the remaining of the marking to be accomplished during 1994.

#### Discussion

Above normal levels of white and red fir mortality have been experienced on the Eagle Lake Ranger District as a result of the ongoing drought, fir engraver attacks and overstocking. Trees suffering from inadequate moisture levels have their normal defense systems weakened to the point that they are more susceptible to attack by bark and engraver beetles. The fir engraver commonly makes its initial attacks in the top portion of the bole. Numerous attacks over part or all of the bole may kill the upper portion of the crown or the entire tree. Often times, however, only strips or patches of the bole are killed. Attacks can also girdle and kill individual branches resulting in flagging throughout the tree. A tree can recover from fir engraver attacks if sufficient cambium area remains undamaged. Top-killed trees can produce new leaders.

To facilitate development of more reliable site specific 6 month salvage marking criteria for true fir, Forest Pest Management developed protocols for establishing the longevity of red and white fir that do not meet the 25 June 1992 Regional 6 month marking guidelines for areas with CA Spotted Owl management responsibilities (see Regional Forester memo, 3400/2430, August 17, 1992.) Initiation of true fir monitoring projects on the Lassen National

Forest would provide quantitative documentation on the reliability of the above mentioned guidelines and facilitate in modifying them as needed on a site specific basis. Forest Pest Management can assist the Forest in implementing monitoring projects as needed.

If you have any questions regarding this evaluation please contact Sheri Smith, Northeastern CA Shared Service Area, at 916-257-2151, ext. 6667.

/s/ Sheri Lee Smith

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Entomologist

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